PROJECT MANAGEMENT PLAN

REVISION: 00

ASHLAND/NSP LAKEFRONT SUPERFUND SITE

ASHLAND, WISCONSIN

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1.0 INTRODUCTION

This *Project Management Plan* (PMP) describes the overall management structure for the conduct of the Remedial Investigation/Feasibility Study (RI/FS) at the Ashland Lakefront Superfund site located in Ashland, Wisconsin (the "Site"). The plan is organized into the following sections:

- Introduction
- Site Description and History
- Overview of the Administrative Order on Consent (AOC) and Statement Of Work (SOW)
- Technical Approach
- Personnel
- Schedule

The general purpose of the RI/FS is to complete the site characterization sufficient to evaluate and select appropriate remedies for the site. The purpose of this PMP is to describe the mechanisms which will be used to manage the project, establish the schedule, and define the roles and responsibilities of key project personnel.

2.0 SITE DESCRIPTION AND HISTORY

As background and context for the development of the PMP, an overview of the site history and the results of previous investigations are provided in this section.

a) The Site encompasses approximately 20 acres in Ashland, Wisconsin, including a former manufactured gas plant ("MGP") located on property owned by Xcel Energy, Kreher Park, a small inlet of Chequamegon Bay of Lake Superior, and a railroad corridor. Approximately 2,810 people live within a 1-mile radius of the Site.

b) Xcel Energy is the owner of the MGP that is included within the Site. Other site properties are owned by the City of Ashland and various private landowners.

c) From approximately 1885 to 1947, gas was generated for heating and lighting at the MGP. Manufactured gas plant wastes and co-products containing hazardous substances were released during the gas manufacturing process at the MGP. The MGP property was transected on the north by a ravine that ended at the historic shoreline of Chequamegon Bay. Historical maps show that the ravine was open at the start of gas production at the MGP in the late 1880s, and was filled by the early 1900s.

d) The lakefront portion of the Site has been the location of historic industrial activities, and currently consists of an area owned by the City of Ashland known as Kreher Park. Kreher Park was created in the late 1800s and early 1900s by the placement of various fill materials into Chequamegon Bay. In the eastern portion of the Park area, the fill material consists mainly of sawdust, wood waste and wood treatment residuals from a series of sawmills that operated from the early 1880s until approximately 1932. The uncontrolled filling of the rest of this area occurred during and after the operation of the sawmills, with the western portion of the bay filled in with municipal and industrial waste material. A former wastewater treatment plant (WWTP) structure exists at the Kreher Park property.

e) Site assessments and investigations conducted at the Site by Wisconsin Department of Natural Resources (WDNR), USEPA, and Xcel Energy have identified high levels of coal tar/wood treatment residuals and other waste materials in groundwater, soil and sediment across the Site. Manufactured gas plant waste contains hazardous substances, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and polycyclic aromatic compounds (PAHs). Hazardous substances, including VOCs, SVOCs, and PAHs, are present in an aquifer beneath the MGP, in soil and groundwater in the ravine and at Kreher Park, and in sediments in Chequamegon Bay.

f) Pursuant to Section 105(a)(8)(B) of CERCLA, 42 U.S.C. §9605(a)(8)(B), the Site was added to the National Priorities List ("NPL"), 40 C.F.R. Part 300, App. B, on October 7, 2002 (67 FR 56757, Sept. 5, 2002).

2.1 BACKGROUND

MGP operations historically conducted at the site resulted in the creation of coal tar as a co-product. Some tar was sold or reused as boiler fuel, but some tar was also released to the environment during the operational life of the MGP.

Several phases of site investigation have been completed at the facility since 1995. These investigations have identified soil and groundwater contamination at the Xcel Energy property. Results of the investigations show that a backfilled ravine that historically opened to Chequamegon Bay is located on the property; the ravine is filled with cinders, ash, demolition material (bricks, concrete, etc.), and fill soil. The mouth of the former ravine in Kreher Park is in the approximate area of a feature formerly referred to as the “seep,” which is immediately north of the WCL railroad. This seep area is so named because of an intermittent surface discharge of groundwater from a former buried clay tile historically placed in the ravine prior to its backfilling. This seep discharge contained visible coal tar and petroleum residuals. Because the ravine backfill material is more permeable than the surrounding soil deposits (the Miller Creek formation), the saturated portion of the ravine fill behaves as a perched aquifer. The Miller Creek is composed of a fine grained low permeability silty clay. Coal tar has been encountered in wells screened within the backfilled ravine. Coal tar contaminants in the soil within the backfilled ravine exceed recommended WDNR soil cleanup standards, and contaminants in groundwater within the ravine exceed ch. NR 140, Wisconsin Administrative Code (WAC) groundwater quality standards.

URS, on behalf of Xcel Energy, designed, coordinated the construction, and is overseeing the operation of a coal tar recovery system for the Copper Falls Aquifer as an interim response. This remediation system was constructed on Xcel Energy property, and extracts coal tar from the aquifer. The system treats groundwater that is removed concurrent with the removal of the tar. Coal tar is separated and collected in a holding tank, and then transported off-site for proper disposal. Water is treated in accordance with standards set by the City of Ashland, and discharged to its sanitary sewer system.[1]

The former manufactured gas plant (MGP) site investigation results also show that coal tar migrated vertically into the underlying Copper Falls aquifer. The Copper Falls aquifer in the area of the MGP is a confined aquifer with strong upward vertical gradients. The Miller Creek formation behaves as an aquitard, or confining unit above the Copper Falls aquifer. These upward vertical gradients have limited the vertical migration of coal tar, minimizing downward movement of the coal tar through the depth of the Copper Falls aquifer. However, the long-term presence of the tar in the aquifer has resulted in a plume of dissolved contaminants extending north beneath Kreher Park. Groundwater within the identified plume is currently not being used as a potable water supply, nor is it a threat to the City of Ashland's drinking water source (Lake Superior). Groundwater samples have been collected quarterly from wells screened in the Copper Falls aquifer as part of the monitoring program for the coal tar recovery system.

Previous investigations have also identified soil contamination in Kreher Park and in near shore bay sediments. Contaminated near shore sediments are located within the inlet created by the jetty and marina extension described above.

For the purposes of the RI/FS the site has been divided into four Areas of Concern (ACs):

AC 1 – Upper Bluff/Filled Ravine Area
AC 2 – Copper Falls Formation
AC 3 – Kreher Park
AC 4 – Chequamegon Bay Sediments

[1] Xcel Energy implemented a second remedial action at the seep in 2002. This effort consisted of removing contaminated soils in the area of the seep and capping the area with a low permeability geotextile and soil cover. Additionally, an extraction well was installed on the Xcel Energy property at the mouth of the ravine to capture groundwater that was the source of flow to the seep. The collected flow is routed to the existing on-site tar removal system for treatment prior to discharge to the sanitary sewer.

2.2 NATURE AND EXTENT OF CONTAMINATION

Previous investigations have identified the general nature and extent of the contamination at the Site. The purpose of the RI at the Site is to expand the scope of the previous investigations sufficiently to determine the nature and extent of contamination in each of the ACs and to gather sufficient additional data necessary to select a remedy or remedies for the site. The results of the previous investigations are summarized below.

2.2.1 AC 1- Upper Bluff/Filled Ravine

The Upper Bluff/Ravine Fill has been the subject of several investigations to identify the extent of contamination in the area of the MGP. While the contamination in the former ravine is well characterized, there are still issues with respect to the extent of contamination at the MGP site now occupied by the Xcel Energy offices and maintenance facility. The investigation will also address potential soil vapor pathways into buildings from the material in the ravine. The lateral extent of soil and groundwater contamination in the backfilled ravine has been characterized from borings advanced during previous phases of investigation, aerial photographs, and other historical information. The ravine fill unit consists of silty clay fill material mixed with ash, cinders, slag, and fragments of bricks, concrete, glass, and wood. The volume of the fill in the former ravine is estimated at 29,400 cubic yards.

The highest levels of soil contamination were detected within several feet of the surface in the vicinity of the MGP located south of St. Claire Street. The fine grained low permeability Miller Creek formation restricts the vertical and lateral migration of contaminants. The concentrations of contaminants decline with depth at several sample locations. Low levels of soil contamination were detected in soil samples collected around the perimeter of the former ravine which indicates that the concentrations of contaminants also decline laterally with distance from the MGP. Regardless, residual contaminant levels (RCLs) listed in ch. NR 720, WAC, for arsenic and coal tar constituents (benzene, toluene, xylene, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, and phenanthrene) have been exceeded in soil samples collected from the Xcel Energy property.

Groundwater samples collected from shallow wells screened in the shallow aquifer on the Xcel Energy property detected coal tar constituents (benzene, toluene, naphthalene, trimethylbenzene (total), and xylene (total), anthracene, benzo(a)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, naphthalene, and pyrene) above groundwater quality standards. Groundwater monitoring results from samples collected from wells screened in and around the backfilled ravine indicate that groundwater contamination in the shallow aquifer is limited to the former ravine.

Dense Non-Aqueous Phase Liquid (DNAPL) has historically been encountered in wells MW-9, TW-13, and MW-15 screened in the backfilled ravine located in the vicinity of the MGP. Several feet of DNAPL were measured in these wells after they had been installed. However, the thickness of DNAPL in these wells has declined since the interim response coal tar recovery system became operational. (Since the coal tar recovery system began operating, DNAPL thickness has been measured in site monitoring wells quarterly concurrent with the collection of groundwater samples; DNAPL is then bailed from each well if encountered, and discharged to the on-site remediation system.)

In the ravine, the estimated volume of fill material on the Xcel Energy property is approximately 30,000 cubic yards. The maximum estimated volume of DNAPL within the ravine, based on an assumed thickness of DNAPL of 1.5 feet, an area of 4,000 ft^2 and a porosity of 25 percent, is 11,220 gallons.

The purpose of the remaining investigations in the ravine and upper bluff areas are to better define the extent of soil contamination on the Xcel Energy property constructed above the backfilled ravine and to determine the lateral extent of the contamination at the MGP site. Soil vapor sampling will also be performed in the areas immediately above the ravine to determine whether or not a soil vapor plume exists which may create an additional exposure pathway which will need to be addressed. Details of the investigation are contained in the RI/FS Work Plan.

2.2.2 AC 2 - Copper Falls Formation

From north to south, the Miller Creek grades from a silty clay into a silt and silty sand unit at the base of the former ravine between wells MW-4 and MW-9. The lithologic change in the Miller

Creek south of St. Claire St. likely allowed the vertical (downward) migration of coal tars into the underlying Copper Falls aquifer. Elsewhere, the fine grained low permeability Miller Creek restricts the vertical migration of contamination, especially toward the bay where the Miller Creek thickens. Groundwater monitoring results detected elevated concentrations of coal tar constituents in samples collected from wells screened within the Copper Falls aquifer, as well as confirmed the presence of DNAPLs.

The highest concentrations of coal tar constituents were detected in samples collected from wells MW-2AR, MW-2B(NET), MW-4A, MW-5B, MW-7A, MW-13A, and MW-13B. The strong upward gradients observed in the confined Copper Falls aquifer has resulted in a plume in the Copper Falls that is deep near the source area, and laterally extensive down gradient from the source area. The upward gradients in the Copper Falls have “forced” these contaminants upward with the general northward flow of groundwater in this aquifer. Consequently, a mushroom shaped plume is present in the Copper Falls below the Xcel Energy site. Although contaminants have also migrated laterally in the down gradient direction of groundwater flow, samples collected from wells screened in the lower Copper Falls aquifer indicate that contaminant concentrations decline with distance from the source area. Contaminant levels appear to decline laterally away from the site. Elevated levels have been measured in deep wells at Kreher Park; however, no DNAPL has been measured beyond the Xcel Energy site in this aquifer. Additionally, two artesian wells east and northwest of Kreher Park have yielded no contaminants.

The estimated volume of contaminated groundwater in the Copper Falls Aquifer, based on an average thickness of 40 feet, and an area of 480,000 ft^2 and 25 percent porosity, is 40 million gallons. (This measurement does not include areas north of the Kreher Park shoreline which cannot be confirmed.) The maximum estimated volume of DNAPL, based on an assumed thickness of DNAPL of 13 feet, an area encompassing approximately 8,600 ft^2, and a porosity of 25 percent, is 204,000 gallons.

The purpose of the additional investigations into the Copper Falls groundwater are to determine the nature and extent of contamination laterally and vertically and to establish whether or not contamination has migrated vertically into the bedrock below the ravine.

2.2.3 AC 3 - Kreher Park

Kreher Park is characterized by varying levels of contamination in soils and groundwater. This contamination consists primarily of VOC and PAH compounds. Metals were also detected in soil and groundwater samples, likely resulting from characteristics of the fill material. Results of investigations completed at Kreher Park indicate that the park area was covered by a 1 to 2 foot layer of clean surficial soil overlying the contaminated fill which is comprised of soil mixed with slab wood and sawdust. VOC and PAH impacted soils at Kreher Park approximates the area of shallow groundwater contamination. PAH soil contamination generally begins near the shallow groundwater surface, and extends to the top of the Miller Creek Formation. Emulsified NAPLs as well as an area of DNAPLs near the seep and recently in one well north of the Waste Water Treatment Plant (TW-11) were also identified in Kreher Park fill soils. Potential source areas that have been identified at Kreher Park include: A former municipal solid waste disposal area in the western portion of the Park area; releases from the former WWTP; releases from the off-loading of petroleum-based materials at various railroad sidings; a former "coal tar dump"/wood treatment area identified on historic drawings south of the former WWTP, and the seep area at the mouth of the filled ravine. In addition there are several underground utility lines which may pose potential migration routes for contaminated groundwater.

The SEH March 1999 Remedial Action Options Report (RAOR) states that the depth of contamination at the Park ranges from 1 to 15 feet. The impacted fill is estimated at 150,000 cubic yards, and the volume of clean fill overlying the contaminated soils is estimated at 45,000 cubic yards. A free-product plume was historically measured at the seep, at the location of monitoring well MW-7. This plume was a separate, distinct source, which likely originated from a combination of coal tar migration along the former clay tile identified at the base of the ravine, as well as rail offloading of fuel materials known to have occurred at this location.

The purpose of the soil investigations will be to better characterize source areas, and evaluate pathways for migration of groundwater contamination. Additional shallow monitoring wells will be placed along the bay to evaluate groundwater/surface water/sediment interaction.

2.2.4 AC 4 - Chequamegon Bay Inlet

The lateral and vertical extent of contamination in the Chequamegon Bay inlet adjacent to Kreher Park has been identified during previous investigations. Contaminated near-shore sediments are located within the inlets created by the jetty extension of Prentice Avenue to the east, and the marina extension of Ellis Avenue to the west. Constituents of concern identified from previous investigations include VOCs and SVOCs characteristic of a coal tar/creosote origin. A layer of wood chips overlies native sediment throughout the study area. The wood chip layer varies in thickness from 0 to 6-feet, averaging about nine inches. Native sediment underlying the wood chip layer consists of interbedded layers of sand, silty sand, silt, and silty clay. The highest concentrations of VOCs and SVOCs were detected in soil samples collected west of the former WWTP at depths between 0 and 6 feet below the sediment surface. Contaminants are present at deeper intervals, but the lateral extent of contamination at these deeper intervals is limited to isolated hot spot areas.

During the winter of 2001, URS conducted a detailed study of the extent of sediment contamination to further refine work performed by SEH in 1996. The results of this study are included in URS June 2001 report. During the winter of 2003, SEH under contract to the WDNR and with the approval of USEPA, collected additional data for physical characterization of the bay sediments. This data included dredged samples of the shallow sediments (0 to six inches) as well as additional background samples beyond the affected area. The results of this testing generally confirmed the conclusions of the previous investigations.

Estimated volumes of contaminated sediment have been prepared by SEH and Dames & Moore/URS. Based upon the conclusions of the SEH 1998 Ecological Risk Assessment, an area of 410,000 square feet, or 9.4 acres, of sediments has been identified as requiring remediation. The SEH RAOR states that a wood waste layer of 9-inch average thickness is present over the contaminated sediments, and that the sediments vary from 0 to 7 feet of thickness over the site. The volume of contaminated sediments is estimated at 152,000 cubic yards, including approximately 4000 cubic yards of wood waste. In 2001, URS performed a sediment investigation that further characterized the vertical extent of contaminated sediments. The lateral extent of contamination identified within the first six feet of sediments was essentially similar to that estimated by SEH. However, the presence of contaminants at greater depths was limited to a few hot-spots.

The additional investigations in the Chequamegon Bay Inlet will be in support of the ecological risk assessment and the remedy selection process. They will include sampling to determine representative background concentrations of contaminants of concern, sediment stability studies, ecological studies and evaluations of the impact of the wood waste on the ecology and on potential remedies.

2.3 POTENTIAL CONTAMINANT EXPOSURE PATHWAYS

The purpose of the Ecological and Human Health Risk Assessment process will be to recommend the appropriate clean up levels for the contamination at the Site, determine the areas which have sustained ecological impacts, and provide input into the remedy selection process.

2.3.1 Human Exposure Pathways

Potential contaminant exposure pathways to humans includes ingestion of contaminated soil or groundwater, inhalation of vapors from contaminated soil or groundwater, and physical contact with contaminated soil, groundwater, surface water, sediment, or coal tar. Minimal exposure can be expected from contaminated soil and groundwater via the ingestion and physical contact exposure routes because these exposure pathways are generally incomplete. Contaminated soil is located below relatively clean fill and/or pavements and structures, and groundwater is not a potable water source. Subsurface contamination on the Xcel Energy property is located beneath buildings and asphalt pavement beneath and south of St. Claire Street. North of St. Claire Street in the buried ravine and at Kreher Park, relatively clean fill soil overlies the more contaminated soil and fill materials. Potential exposure scenarios for these pathways include construction workers encroaching contaminated materials in excavation trenches in the backfilled ravine on the Xcel Energy property or at Kreher Park. Additionally, although groundwater in the vicinity of the site is not utilized as a primary source of drinking water by the City of Ashland (the City municipal water supply is obtained from Lake Superior from an intake over a mile away), two artesian wells screened in the Copper Falls Aquifer are located at Kreher Park. Samples routinely collected from these wells indicate the water is safe to drink.

Minimal exposure can also be expected from inhalation of vapors from soil or groundwater because migration pathways do not exist. As described above, clean fill, asphalt pavement and buildings overlie areas with contaminated soil. There are no buildings with basements currently occupied on either property overlying contaminated fill material and the shallow fill perched aquifers. (The former City of Ashland WWTP is built over contaminated fill material, but the building is currently vacant and not accessible.)

Because the underlying Copper Falls aquifer is confined, there is also no pathway for vapor migration from contamination in the aquifer; the low permeability Miller Creek formation behaves as a confining unit as well as a barrier to or migration.

The remediation of the seep area in 2002 has eliminated exposure to contaminated soil and groundwater previously discharged at the seep area. However, exposure to sediment and contaminated surface water in the Chequamegon Bay inlet adjacent to Kreher Park would occur if people were to swim or wade in this area. Currently, swimming, wading and fishing in the area are restricted, and the area is well marked with warning signs and buoys. Ecologic receptors including benthic organisms and fish are exposed to this contamination. Previous studies by SEH have shown some adverse exposure to benthic invertebrates, but further studies will be performed. Additionally, fish tissue analyses completed on specimens taken from Chequamegon Bay indicate that fish do not contain levels of site-related chemicals that are a health concern.

2.3.2 Ecological Exposure Pathways

Exposure pathways for ecological receptors include the following:

- Birds - ingestion of sediment, surface water, and food;
- Mammals- ingestion of sediment, surface water, and food;
- Fish - ingestion and direct contact with sediment and surface water;
- Reptiles and amphibians - ingestion and direct contact with sediment and surface water and ingestion of food;
- Aquatic invertebrates - ingestion and direct contact with sediment or surface water and ingestion of food;
- Aquatic plants - root uptake and direct contact with sediment and surface water; and,

- Phytoplankton and zooplankton – direct contact with surface water.

Aquatic invertebrates, including benthic, epibenthic, pelagic and planktonic invertebrates, may be exposed to chemicals in sediment and surface water through ingestion and direct contact or by absorption through their skin. They can also be exposed through their food. Aquatic plants potentially can absorb chemicals from sediment and surface water through their roots, leaves, or stems. Both aquatic invertebrates and aquatic plants can serve as a major exposure pathway to upper trophic levels since they are prey for fish, birds, and mammals; this is termed trophic (or food chain) transfer. Food chain transfer of chemicals is important only for those chemicals that are bioaccumulative.

Amphibians and reptiles may be exposed to chemicals in sediment and surface water along the shoreline through ingestion, dermal contact, and by feeding on contaminated aquatic invertebrates. Exposure may occur during feeding, early development of eggs and larvae, or burrowing. Amphibians and reptiles also may be an exposure pathway to birds and mammals through food chain transfer.

Fish may be exposed to chemicals in sediment and surface water through ingestion, dermal contact, uptake through gills, and by feeding on aquatic plants, invertebrates, or smaller fish. Exposure may occur during feeding, spawning, or burrowing. Aquatic vertebrates also may be an exposure pathway to birds and mammals through food chain transfer.

Birds and mammals may be exposed directly to chemicals in the sediment and surface water through incidental ingestion, dermal contact, and inhalation of particulates, although the latter exposure pathway will not be quantitatively evaluated. They may also be exposed indirectly through food chain transfer although as discussed previously, this exposure pathway is significant only for those chemicals that are bioaccumulative.

3.0 OVERVIEW OF THE SOW AND THE AOC PROBLEM DEFINITION

On November 14, 2003, the United States Environmental Protection Agency (USEPA), under the authority of CERCLA Section 104, 107, and 122, and Xcel Energy signed an AOC for a RI and FS at the Site. The RI/FS consists of four major components: an RI, an Ecological Risk Assessment, a Human Health Risk Assessment, and an FS. The RI is intended to gather information regarding the nature and extent of contamination at the site and collect data to support the Ecological Risk Assessment, the Human Health Risk Assessment and the FS. The Ecological and Human Health risk Assessments are intended to provide an evaluation of the ecological and human health risks posed by the Site sufficient to identify contaminants of concern, and select appropriate clean up levels for the various contaminated media. The FS process will be used to evaluate remedies for the site based upon the nine criteria identified under the National Oil and Hazardous Pollution Contingency Plan and under CERCLA. The objectives as stated in the AOC are as follows:

a) To determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site or facility, by conducting an RI as more specifically set forth in the SOW attached to the AOC;

b) To determine and evaluate alternatives for remedial action (if any) to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site or facility, by conducting a FS as more specifically set forth in the SOW;

c) To collect sufficient data for developing and evaluating effective remedial alternatives; and

d) To recover oversight costs incurred by USEPA with respect to this AOC.

3.1 ACTIVITIES AND DELIVERABLES

Activities and deliverables are outlined in the AOC. All work is to be conducted in accordance with CERCLA, the NCP, and EPA guidance. The general activities that Xcel Energy is required to perform are identified below, followed by a list of deliverables. The tasks that Xcel Energy must perform are described more fully in the SOW and the Work Plan submitted in conjunction with the Project Management Plan. Xcel Energy will submit in electronic form all portions of any report or other deliverable as stated in the AOC.

The AOC requires development of the following Plans:

- Remedial Investigation/Feasibility Study Work Plan;
- Field Sampling Plan;
- Quality Assurance Project Plan;
- Health and Safety Plan; and
- Project Management Plan/ Data Management Plan;

3.2 INVESTIGATION TASKS

The AOC requires the performance of the following Tasks:

Task 1: Prepare RI/FS Planning Documents –
RI/FS Work Plan, Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP) and Project Management Plan (PMP);
Task 2: Provide Community Relations Support to USEPA as requested;
Task 3: Perform Site Characterization;
Task 4: Prepare RI Report;
Task 5: Develop and Screen Alternatives (Prepare Technical Memoranda);
Task 6: Perform Treatability Studies (if needed);
Task 7: Develop a Detailed Analysis of Alternatives (FS Report), and
Task 8: Submit Monthly Progress Reports.

Details of the above tasks are provided in the RI/FS Work Plan submitted with this PMP.

4.0 MANAGEMENT AND TECHNICAL APPROACH

URS has elected to combine the discussion of the management approach and the technical approach in this section because the management philosophy for this project is intrinsically driven by the technical needs of the project and the schedule. The intent is to schedule the field work at each AC in such a manner that the field resources can be efficiently utilized to gather the data needed for the critical tasks. A schedule for the field work has been developed and is attached to this plan (it is also included with the Work Plan) which identifies the work tasks that drive the decision making process, and ultimately the schedule.

4.1 OVERALL MANAGEMENT APPROACH

The purpose of the RI/FS is to determine the nature and extent of the contamination and to provide sufficient information to determine appropriate clean up requirements and evaluate the feasibility of various corrective actions. The RI/FS requires extensive coordination and management to avoid duplication of investigative efforts and to ensure that the information collected is complete and suitable for use in the remainder of the risk assessment and remedy selection process. The investigation of environmental media, characterization of contamination and sources, and identification of potential off-site receptors present a significant management challenge. The size, age, and complexity of the Site greatly increases the level of effort needed to effectively manage this project.

The AOC requires Xcel Energy to satisfy the four objectives previously stated in Section 3.0. Because of the size and complexity of the site, the site is divided into ACs for the purpose of the RI/FS. The prioritization of the AC investigations is the basis for the management of the RI/FS. Based on the evaluation of the data already gathered for the various ACs, the primary focus of the RI/FS will be on the affected Bay sediments (i.e., AC 4), and the Ecological and Human Health Risk assessments that will be developed from the data generated. The investigations at Kreher Park, the Upper Bluff Area and the Copper Falls aquifer are no less important. Components of the Human Health Risk Assessment will address exposure from contaminants at these source areas. The investigations at these ACs will focus on fully characterizing the lateral and vertical extent of contamination sufficient to select a final remedy which is protective of the human health and the environment. Regardless, the sediments represent the greatest challenge that requires an environmentally and economically balanced solution.

The development of the AC concept for the RI/FS affects the conduct of the RI/FS. The AC concept will guide the investigative focus throughout the RI/FS process. Each AC will be investigated separately. Once the data for an AC is gathered, chemicals of concern (COCs) will be identified, pathways defined and subsequently input and evaluated in the appropriate risk assessment. The exposure pathways will also be evaluated how they affect other ACs (i.e., the exposure pathways from the Upper Bluff area and the ravine will be evaluated to determine if the COCs affect the remedy selection process for the Copper Falls Aquifer; similarly, the exposure pathways from Kreher Park will be evaluated to determine if the COCs affect the remedy selection process for the sediments). Thus the interrelationships between the various ACs can be identified and considered in the remedy selection process.

The consideration of exposure pathways, risk assessment needs and ultimate remedy selection data needs will be considered throughout the investigation process. These factors will be considered throughout the RI to ensure that data gathering and evaluation is performed in a manner consistent with the overall Risk evaluation and remedy selection process and objectives.

The critical success factors are as follows:

- Critical Path driven RI implementation;
- Prioritized decision-making using risk evaluation;
- Use of site-specific, risk-based protection standards;
- Coordinated regulatory agencies interaction;
- Effective public communication;
- Focused investigation on the end-use of results, not the process;
- Reasonably streamlined processes;
- Maintenance of AC focus; and,
- Emphasis on inclusion of stakeholder input.

The detailed schedule for implementation of the RI/FS is attached as Appendix C. This same schedule is included in the Work Plan. The program organization structure developed to provide the flexibility and depth of resources necessary to conduct the RI/FS is presented in Section 5.

4.2 TECHNICAL APPROACH

Soil, groundwater, sediment, and surface water at the Ashland Lakefront site are contaminated with PAHs, VOCs, and to a lesser degree, inorganic compounds (metals and cyanide). This contamination is the result of former activities completed on the Xcel Energy property, and activities completed on the Kreher Park Property. The site history for each property and a description of the site is presented in the following sections. Contamination can be divided into the following four areas of concern:

- **Upper Bluff/Filled Ravine (AC 1)** – Consists of soil and groundwater contamination, and free product coal tar within the backfilled ravine on the Xcel Energy property.

- **Copper Falls Aquifer (AC 2)** – Consists of groundwater contamination and free-product coal tar in the Copper Falls aquifer on the Xcel Energy property; groundwater contamination is also present downgradient in the aquifer below (and hydraulically separate from) the Kreher Park fill and the Bay sediments.

- **Kreher Park (AC 3)** – Consists of soil and groundwater contamination in the fill material in Kreher Park.

- **Chequamegon Bay Inlet (AC 4)** – Consists of sediment contamination in the near shore area adjacent to Kreher Park.

The overall goal of the RI/FS process is to collect sufficient data to characterize the extent of contamination and select the appropriate remedies at the Site. Additional site investigation data and historic site investigation data will be used to evaluate potential exposure pathways to select remedial alternatives protective of human health and the environment. Specific objectives of the RI/FS include the following:

- Identify hazardous substances released to the environment, and develop a list of these constituents of concern;
- Identify the vertical and lateral extent of coal tar present as DNAPL.
- Identify the vertical and lateral extent of soil and groundwater contamination at the site;
- Identify potential migration pathways for constituents of concern;
- Identify potential receptors for constituents of concern;
- Use previously developed data of sufficient quality for site characterization, risk assessment, and selection of remedial alternatives;
- Evaluate potential risk to human health and the environment; and
- Develop a remedial alternative or separate alternatives to remedy potential threats to human health and the environment.

Xcel Energy has identified two key aspects of the technical approach to the RI/FS. First is the assessment of the shallow groundwater at Kreher Park as a continuing source of contamination to the sediments. Second is the assessment of the impacts of the contaminants and the wood waste on the ecology of the bay. This will enable Xcel Energy to determine which remedies are required to meet the long-term effectiveness criteria in the remedy selection process since the remedies selected for Kreher Park and the Upper Bluff may have a significant impact on the remedy selection process in the Bay. Because of the importance of both aspects of the technical approach, the discussion of each of these technical approaches has been incorporated into the PMP and is described in detail below.

4.1.1 Kreher Park

Groundwater flow is the primary medium for chemical migration. As a result, groundwater provides the pathway for chemical transport between potential sources at Kreher Park and potential off-site human and/or ecological receptors. While it appears that the sediment contamination in the bay is of historical origin, it is important to determine what the current contribution of potential sources in this area is to the bay sediments either through groundwater discharge or surficial seeps. As a result, the first investigation performed at the site will consist of the installation of shallow monitoring wells along the bay. This will enable Xcel Energy to plan remediation alternatives to reduce or eliminate future releases to the bay. It will also allow the determination of potential human health risks from contamination in Kreher Park.

4.1.2 Chequamegon Bay Sediment

Chequamegon Bay is the ultimate receptor for contaminated materials at the Site either from historic sources or from current ground water discharges. To determine the final remedy the following tasks need to be performed:

1. Complete field investigation and modeling for Chequamegon Bay that will include:

   - Confirmation of the vertical limits of contamination;
   - Identification of areas to conduct ecological testing;
   - Performance of PAH forensic analysis on sediment samples; and
   - Establishment of representative background and "ambient conditions" values for site compounds of potential concern (COCs).

2. Finalize the data quality objectives and develop a supplemental sampling plan to complete data needs for the Bay. Data needs preliminarily identified to date include the following:

   - Pore water characterization;
   - Comprehensive evaluation of the benthic community;
   - Fish impact study;
   - Potentially, a wildlife ingestion study;
   - Evaluation of the sediment stability;
   - Evaluation of wood waste impact;
   - Evaluation of dissolved phase COCs in the water column with undisturbed sediments, and an evaluation of dissolved phase and free product COCs in the water column with disturbed sediments;
   - 28-day lifecycle tests for benthic species; and
   - Fish early life-stage bioassay.

3. Prepare a baseline ecological risk assessment to establish clean up criteria for the bay sediments. This will require significant input from the local stakeholders to determine the future use of the bay and set appropriate clean up goals.

The detailed scope of work for the execution of these tasks and related efforts are discussed in the RI/FS Work Plan.

4.3 RISK EVALUATION STRATEGY

The risk evaluation will assess potential exposures to human and ecological receptors in the vicinity of the Site. In addition, the risk evaluation will be performed to assist in the identification of areas of each AC that may require corrective measures for appropriate land use scenarios. The risk evaluation will be performed using USEPA standard risk assessment guidance as outlined in the RI/FS work plan.

4.3.1 Baseline Human Health Risk Assessment

A baseline human health risk evaluation will be conducted for the Site. The consideration of worker, residential, and recreational exposure is a component of the RI/FS process. Potential worker, residential, and recreational exposure pathways will be identified using information on use characteristics for the Site, information on Xcel Energy worker job functions and job descriptions, and other relevant information. Consideration will also be given to addressing risks for those workers or visitors who may transit several potential exposure areas at Kreher Park or at the Xcel Energy site (the MGP) during the course of a workday or a visit to the Park. The potential exposure routes and receptors are detailed in the separate Work Plan. In the human health risk evaluation, cumulative risk levels/hazard indices (HIs) will be calculated for COCs in environmental media (i.e., soil, groundwater, surface water, and sediment) as identified for each AC. If the cumulative risk level/HI for a particular COC exceeds its target risk level, clean up levels will be derived based on the scenarios used in the risk evaluation.

Xcel Energy will prepare the human health risk assessment according to the guidelines outlined below:

- Hazard Identification (sources);
- Dose-Response Assessment;
- Conceptual Exposure/Pathway Analysis;
- Characterization of Site and Potential Receptors;

- Exposure Assessment;
- Risk Characterization;
- Identification of Limitations/Uncertainties;
- Site Conceptual Model; and
- Final Human Health Risk Assessment Report.

After the draft Human Health Risk Assessment Report has been reviewed and commented on by USEPA, Xcel Energy will incorporate USEPA comments and submit the final Human Health Risk Assessment Report.

The ultimate goal of the Human Health Risk Assessment is to identify potential human health risks at the site in its present condition, identify contaminants of concern to human health, assess their relative risk, and provide data necessary to aid in the selection of the site remedies. The remedy selected will be the one which reduces the level of risk to an acceptable level based upon the identified COCs, exposure routes and the ultimate land use for the site.

4.3.2 Ecological Risk Evaluation

The ecological risk evaluation will characterize potential risk to ecological receptors at the Site. Based on the significance of the potential risk (i.e., evaluated by lines-of-evidence, spatial extent, etc.), ecological-based remediation goals may be developed. The risk management goal for the Site is to reduce the risk to ecological receptors that may result from site related contamination in the sediments. Xcel Energy will evaluate and assess the risk to environmental receptors in accordance with USEPA guidance. This guidance is referenced in the RI/FS Work Plan.

Xcel Energy will prepare a draft Ecological Risk Assessment Report that addresses the following:

- Hazard Identification (sources);
- Dose-Response Assessment;
- Conceptual Exposure/Pathway Analysis;
- Characterization of the Site and Potential Receptors;
- Select Chemicals, Indicator Species, and End Points;

- Exposure Assessment;
- Toxicity Assessment/Ecological Effects Assessment;
- Risk Characterization;
- Identification of Limitations/Uncertainties; and
- Site Conceptual Model;

The ultimate goal of the Ecological Risk Assessment process is to identify COCs and their current effects to receptors, and provide data necessary to select a remedy that will reduce the exposure to the extent necessary to allow for the maintenance of healthy local populations and communities of biota. Details of what will be required to accomplish this task are listed in the RI/FS Work Plan, along with descriptions of two alternative proposed sampling strategies. The ultimate remedy will be based upon the present levels of contamination, their distribution, the future land use for the site, and the levels necessary to achieve the health and ecological risk based cleanup levels identified during the RI/FS process.

5.0 PROPOSED SCHEDULE

A proposed schedule meeting the requirements of the AOC has been prepared and is included in Appendix C. The same schedule is included in the Work Plan. Specific conditions of this schedule are discussed below.

Based on the technical scoping meeting held on January 8, 2004, and subsequent discussions with USEPA, the following assumptions are included in the preparation of the schedule:

- There is no need to divide the Site into separable operable units at this time; however the site may be divided at a later date if circumstances warrant such a separation for decision making purposes and will expedite remediation of the site;

- The previously developed data gathered in earlier investigations is acceptable for decision making purposes and will not need to be redone;

- Two alternative strategies are being presented in the draft plan one of which includes the use of the Problem Formulation approach for the sediment portion of the site prior to the commencement of the investigation; Xcel Energy recommends this approach since no schedule delays should be experienced before submittal of the Final Feasibility Study Report.

Reports and Submittals

The AOC specifies the following required deliverables. These documents and the associated submittal dates known at this time include:

Submittal	**Date**
Draft RI/FS Work Plan	February 18, 2004
Draft QMP	February 18, 2004
Draft QAPP	February 18, 2004

Submittal	**Date**
Draft HASP	February 18, 2004
Draft PMP/DMP	February 18, 2004
Draft Baseline Human Health Risk Assessment	TBD
Draft Baseline Ecological Risk Assessment	TBD
Final Baseline Human Health Risk Assessment	TBD
Final Baseline Human Health Risk Assessment	TBD
Draft RI Report	TBD
Final RI Report	TBD
Remedial Action Objectives Technical Memorandum	TBD
Alternatives Screening Technical Memorandum	TBD
Candidate Technologies and Screening Tech Memo	TBD (if treatability testing is necessary)
Treatability Testing Statement of Work	TBD (if treatability testing is necessary)
Draft Treatability Study Work Plan	TBD (if treatability testing is necessary)
Final Treatability Study Work Plan	TBD (if treatability testing is necessary)
Treatability Study Evaluation Report	TBD (if treatability testing is necessary)
Comparative Analysis of Alternatives Tech Memo	TBD
Draft FS Report	TBD
Final FS Report	TBD
Monthly Reports	15^{th} of each month

Xcel Energy will update these schedules, as appropriate, throughout the duration of the RI/FS. Submittals will be made in electronic format and hard copy to the USEPA Remediation Project Manager (RPM) and the WDNR Project Manager as required in the AOC.

6.0 PERSONNEL

This PMP identifies the key positions of the RI/FS team and the related responsibilities for those positions. In addition, the qualifications for the personnel filling those positions are provided.

The size and complexity of the site requires a program organization structure flexible enough to respond to changing project demands, but with access to the various expertise needed to complete the investigative, analytical, and risk evaluation tasks required to complete the RI/FS. Xcel Energy has authorized URS Corporation (environmental engineering company), Newfields (a project management company), Northern Lakes Service (analytical laboratory) and Severn Trent Laboratories (analytical laboratory) to perform the relevant RI/FS tasks. The discussion below defines the program organizational structure and identifies key positions.

6.1 PROJECT ORGANIZATION AND MANAGMENT

The project organization and responsibilities of key individuals of the project team are described below. URS has subcontracted with NewFields for project management activities. The project will be coordinated out of the URS Appleton office with Project Management from the NewFields Madison office. Field personnel from URS' Appleton and Milwaukee offices will perform the various field activities for the project.

Project leadership and primary staff will be composed of personnel familiar with anticipated activities. The project team will provide experience in hydrogeologic analysis, environmental engineering, risk assessment, and remedial design. Brief descriptions of key project team members follow.

6.1.1 Project Coordinator

Mr. Jerry Winslow of Xcel Energy will act as the overall project coordinator. Mr. Winslow is a Senior Environmental Manager with Xcel Energy. He is responsible for the overall management of the project and will act as the primary contact with Sharon Jaffess, the USEPA RPM.

6.1.2 Project Director

Mr. Bert Cole will serve as the URS Project Director. Mr. Cole is a Senior Environmental Engineer with more than 29 years of experience in the environmental field. The Project Director is responsible for the overall quality of the project, along with the oversight of subcontractors and tracking budgets. The Project Director will also work with the Project Coordinator and Project Manager in developing schedules and work plans, establishment of project policies and procedures, and review and analyze overall task performance. The URS Project Director has overall responsibility for ensuring that the project meets Agency and Xcel Energy's objectives and URS' quality standards, and will be responsible for overall technical supervision and quality assurance/quality control.

6.1.3 Project Manager

David Trainor, P.E., P.G., of NewFields will function as Project Manager for the project, as a subcontractor to URS. Mr. Trainor has more than 25 years of experience in the environmental field. Mr. Trainor has served as the Project Manager for the NSP/Ashland Lakefront project since the initial investigation was completed in 1995. The Project Manager is responsible for managing the project, and has the authority to commit the resources necessary to meet project objectives and requirements. The Project Manager's primary function is to ensure that technical, financial, and scheduling objectives are achieved. The Project Manager will provide the major point of contact and control for matters concerning the project, and will be responsible for the following:

- Define project objectives to develop detailed schedules for work plans;
- Develop and implement work plans, schedules, and adherence to management-developed study requirements;
- Establish project policies and procedures to address the specific needs of the project as a whole, as well as the objectives of each task;
- Acquire and apply technical and corporate resources as needed to ensure performance within budget and schedule constraints;
- Coordinate and manage field staff that are collecting soil and groundwater samples and supervising drilling activities;

- Orient all field leaders and support staff concerning the project's special considerations;
- Provide day-to-day coordination on technical issues in specific areas of expertise with the field managers;
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product;
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness; and,
- Review and analyze overall task performance with respect to planned requirements and authorizations;

6.1.4 Field Manager(s)

The Field Manager(s) will be responsible for performing field measurements, supervising drilling and well installation activities, preparing field boring logs, collecting soil samples, collecting groundwater samples, preparing samples for shipment, and documenting field conditions and observations. Field managers will be experienced professionals who possess the technical competence to effectively perform the required work. Field Managers will also identify any problems at the site and discuss resolutions of potential problems with the Project Manager. Field Managers will report directly to the Project Manager. Field Manager responsibilities include:

- Implementation of QA/QC procedures required by the Field Manager;
- Adherence to work schedules provided by the project director;

- Review of text and graphics required for site activities;
- Coordination and oversight of technical efforts of sub-contractors assisting the field team;
- Identification of problems in the field, and discussion of resolutions with the project director, and
- Assistance with data analysis and report preparation.

6.1.5 QA/QC Manager

The URS QA/QC Manager for the RI/FS will be responsible for all QA/QC aspects of the program. The URS QA/QC Manager will be responsible for ensuring that all required QA/QC protocols are met in the field, office, and laboratory, and for overseeing the implementation of the QAPP requirements. In addition, the URS QA/QC Manager will be responsible for ensuring that internal system and/or performance audits are conducted as necessary and will oversee the data validation process. The URS QA/QC Manager will report directly to the Project Manager(s).

Ms. Susanne Tomajko of URS Corporation is the URS QA/QC Manager. Ms. Tomajko has over 10 years of experience in the management of QA issues on CERCL/RCRA projects and has extensive experience working in USEPA Region 5.

6.1.6 Laboratory Manager

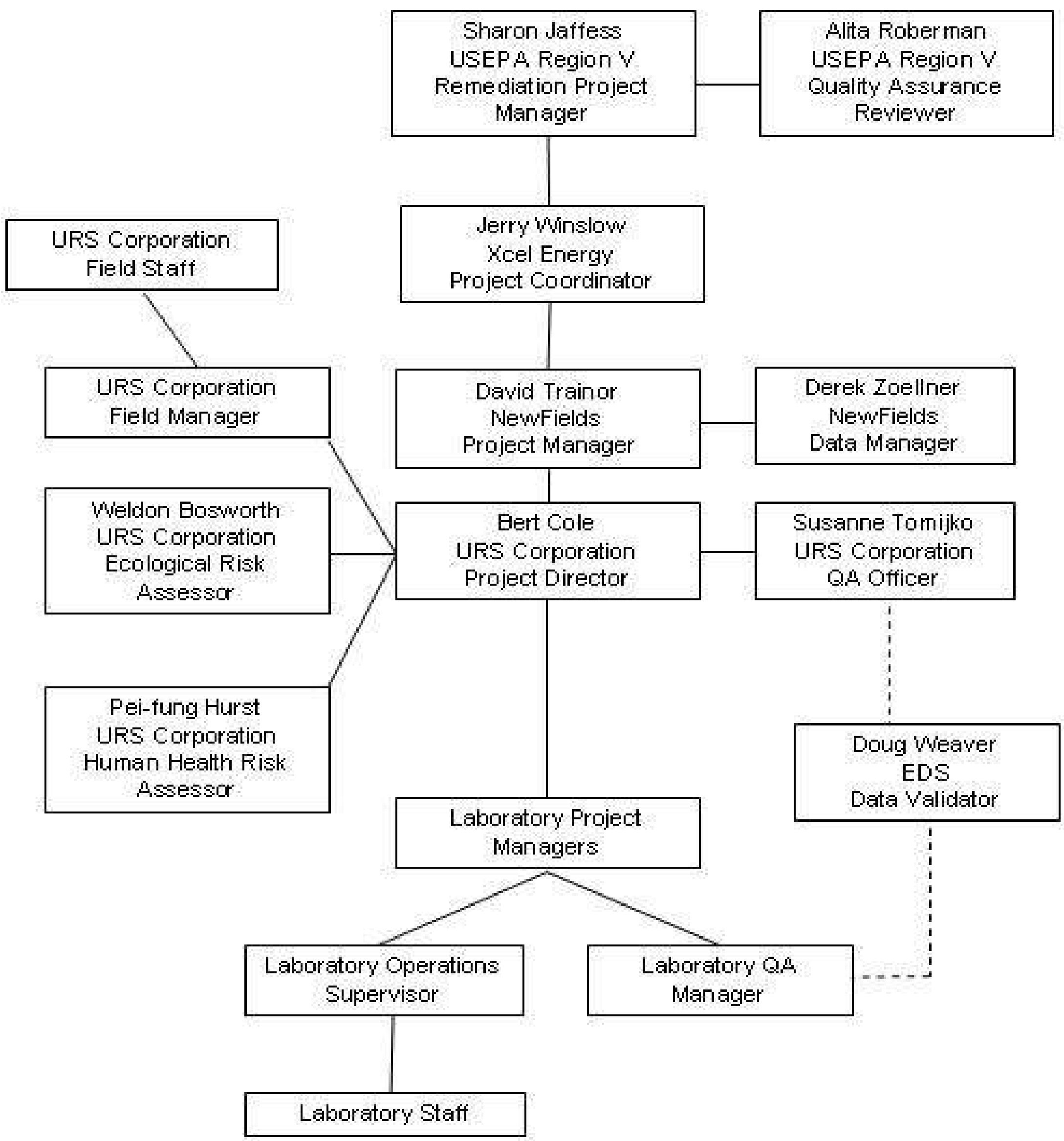
The Laboratory Project Manager for the RI/FS will be responsible for all laboratory operations, and is ultimately responsible for the data produced by the laboratory. The Laboratory Project Manager is responsible for implementing and adhering to the Laboratory QA Management Plan and all corporate policies and procedures within the laboratory. In addition, the Laboratory Manager will be the principal point of contact between the laboratory and the project team. The Laboratory Manager will report directly to the URS QA/QC Manager and the Project Manager(s).

USS has chosen Northern Lake Services (NLS) be the laboratory services supplier for the Facility RI/FS. Mr. Steve Mlenjnek of NLS will serve as the Laboratory Manager for the RI/FS.

6.1.7 Health and Safety Manager

The URS Health and Safety Manager for the RI/FS will be responsible for the implementation of the HASP of the RI/FS Work Plan, as well as all other health or safety considerations that might possibly arise during RI/FS activities. The URS Health and Safety Manager will also be responsible for ensuring that the appropriate personal protective and monitoring equipment is available to all field personnel and for performing on-site safety audits as necessary. The URS Health and Safety Manager will report directly to the Project Manager(s).

Figure 1
Organization Chart



APPENDIX A

DATA MANAGEMENT PLAN

1.0 INTRODUCTION

This *Data Management Plan* (DMP) has been prepared as part of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan for the Ashland/NSP Lakefront Site (the "Site") in Ashland, Wisconsin. The goal of the DMP is to provide a method to produce a series of validated databases for samples collected during future site investigations conducted at the site. The DMP is a central component of the RI/FS Planning Documents. It describes how data obtained during the RI/FS will be documented, stored, managed, and reported. Further details of the components of the DMP are provided in the following sections.

The DMP serves as a supplement to the Project Management Plan (PMP). The primary purpose of the DMP is to communicate to users and decision-makers how sample information from the investigation will be handled in the field and office. This plan outlines the close interaction of the project team from data entry to final use.

This DMP includes three sections describing data processing procedures to be used for the RI/FS. Included are such practices as field sample documentation, chain-of-custody forms, electronic deliverable standards, and electronic storage and management.

The database to be utilized is Microsoft Access. The Access database system will be used to tabulate, manage, archive, and assess sample data collected at the site. Electronic Data Deliverables (EDDs) will be generated with the Access database in conjunction with Microsoft Excel for reporting purposes. When data validation is complete, EDDs will be submitted in monthly status reports to USEPA Region 5 in the Electronic Data Management and Analysis Network (EDMAN) format as outlined in the Electronic Data Deliverable Specification Manual Version 1.05.

2.0 RESPONSIBILITIES AND QUALIFICATIONS

The project organization and responsibilities of key individuals of the Xcel Energy and URS project team are described below. URS has subcontracted with NewFields for project management activities.

2.1 PROJECT COORDINATOR

Mr. Jerry Winslow of Xcel Energy (Minneapolis) will serve as the Project Coordinator. The Project Coordinator has the overall responsibility for management of the project. His primary functions are as follows:

- Define and establish project objectives, policies and procedures to meet the needs of each task;
- Acquire and apply technical and corporate resources as needed to ensure performance within budget and schedule constraints;
- Reviews and analyzes task performance with respect to planned requirements and authorizations; and
- Approves all work plans, schedules, and reports (deliverables) before submission to USEPA Region 5.

2.2 PROJECT DIRECTOR

Mr. Bert Cole (URS-Appleton) will serve as the URS Project Director. The Project Director is responsible for the overall quality of the project and direction of all subcontractors. He will also work closely with the Project Manager in developing schedules, establishing project policies and procedures, and reviewing and analyzing data and reports.

2.3 PROJECT MANAGER

Mr. David Trainor (NewFields-Madison) will serve as Project Manager for the project as a subcontractor to URS. The Project Manager serves as the primary point of contact and is responsible for the day-to-day management of the project including the following:

- Developing and implementing work plans, schedules, project objectives, policies, and procedures;
- Coordinate and manage field staff;
- Provide day-to-day coordination on technical issues with project team members;
- Develop and meet ongoing project staffing requirements as needed;
- Review and analyze overall task performance to ensure quality, responsiveness, and timeliness; and
- Represent the project team at meetings and public hearings.

2.4 FIELD MANAGER

Mr. Benjamin Nelson (URS-Milwaukee) and Mr. Mark McColloch (NewFields – Madison) will serve as the Field Managers. Other field managers will be assigned as needed. The Field Manager directs field staff, reports directly to the Project Manager and is assisted where needed by the Quality Assurance (QA) Officer and Data Manager. The Field Manager will be responsible for the following tasks:

- Ensuring that the field-based portions of this data management plan are correctly executed;
- Recording accurate information on the chain-of-custodies and in field logbooks;
- Documenting all communications with the Project Manager, QA Officer, Data Manager, and Laboratory Project Manager;
- Discussing all quality-based aspects of the work plan with the QA Officer; and
- Transmitting (by fax) a copy of the completed chain-of-custodies to the QA Officer daily.

2.5 QUALITY ASSURANCE OFFICER

Ms. Susanne Tomajko (URS-Chicago) will serve as the QA Officer. The QA Officer reports directly to the Project Manager and will be responsible for verifying that all procedures for the investigation, including execution of the DMP, are followed. The QA Officer will provide assistance and guidance to the Data Manager, Field Manager, and the Laboratory Project Manager, where needed. The QA Officer will be responsible for the following tasks:

- Verifying that the correct information is included on the chain of custodies and in the logbooks;
- Verifying that the correct number of field quality control samples are collected and analyzed;
- Verifying that the correct number of laboratory QC samples are analyzed;
- Communicating daily with the Field Manager; and
- Overseeing that data validation is completed in accordance with the DMP and QAPP.

2.6 DATA MANAGER

Mr. Derek Zoellner (NewFields-Madison) will serve as the Data Manager. The Data Manager reports directly to the Project Manager and will be responsible for compiling the data into a comprehensive and usable database. The Data Manager will work closely with other team members to implement and carry out data management activities according to this plan. Any progress or problems encountered in executing this plan will be reported as appropriate to the Project Manager, QA Officer, or Field Manager. The Data Manager is responsible for the following:

- Correctly uploading, downloading, reporting, and maintaining the project database;
- Verifying the samples have been received and logged into the laboratory correctly;
- Entering the deliverables received from the laboratory into the project files so that they are easily retrieved;
- Verifying that the information reported in the EDD matches what was provided on the paper copy;
- Loading the information into the database and checking that the loading process was completed accurately; and
- Entering the data validation qualifiers into the final, reportable database per the validation report.

2.7 LABORATORY PROJECT MANAGER

The Laboratory Project Manager will report directly to the Project Manager, but will also be responsible to provide direct assistance to the QA Officer, Field Manager, and Data Manager. The Laboratory Project Manager will be responsible for ensuring that all activities inside the laboratory meet project requirements including the following:

- Providing early notification of any discrepancies or problems associated with sample custody and delivery;
- Providing a "log-in summary" (by fax or via website) each day samples are received and logged at the laboratory;
- Ensuring all resources of the laboratory are available on an as-required basis; otherwise, having an alternate analysis plan for the testing of time-critical samples;
- Providing written responses to all inquiries into custody, sample handling, or analytical performance issues;
- Verifying the quality and completeness of both paper copy and EDD analytical reports; and
- Inspecting, reviewing, and signing all final analytical reports prior to release to URS.

Northern Lake Service, Inc. of Crandon, Wisconsin (Steve Mlejnik-Project Manager) will provide laboratory analytical services for all soil and water samples. Test America of Cedar Rapids, Iowa (Brian Graettinger-Project Manager) will provide laboratory analytical services for the interim action remediation system air samples. Severn Trent Laboratories of Knoxville, Tennessee (Ms. Jaime McKinney-Project Manager) will provide laboratory analytical services for air samples collected during the RI/FS.

2.8 DATA VALIDATOR

Mr. Doug Weaver of Environmental Data Services, Inc. (Concord, NH) will serve as the independent Data Validator and will report directly to the Project Manager. Level 4 data validation will be completed on 10 percent of all samples collected during the RI. Level 3 validation will be completed on the remaining 90 percent. Once complete, copies of the data validation report will be sent to the Project Manager and the QA officer. This report will accompany the monthly reports containing electronic data deliverables when submitted to USEPA.

3.0 DATA MANAGEMENT PROCEDURES

Data management involves the handling of information associated with sample collection, analytical reporting, data review, and final data presentation and reporting. This section describes the processes involved in data management for the site investigation. A flow diagram showing the data stream from generation to final Agency submittal is included on Figure 1.

3.1 SAMPLE COLLECTION

Environmental data obtained during the RI will be documented using three methods. Primary data documentation is primarily raw data gathered directly from the field. Secondary data documentation is the transformation of the raw data into a usable and computer accessible format. At this time, the data have not undergone data validation, and therefore are considered part of the working data record. Tertiary data documentation is data that have been validated and is used for technical decision-making during the RI/FS. These validated data are considered part of the permanent data record.

3.1.1 Primary Data Documentation

Raw data will consist of manual transcription of records, measurements, and observations written directly into field data logbooks and field data sheets. Field data logbooks will be used to record events that occur during a particular field activity, as well as measurement readings and other information. Standardized field data sheets, such as soil boring logs or monitoring well construction forms, will also be used in addition to field data logbooks. Chain-of-custody forms will accompany samples at all times and be used to document the collection, transport, and receipt of samples from the field to the laboratory. All field entries will be legible, recorded in ink, and signed and dated by the person recording the data. Further details regarding field logbook procedures and chain-of-custodies are outlined in the QAPP and FSP.

3.1.2 Secondary Data Documentation

Secondary data documentation will consist of the transcription of written field and laboratory data to computerized database formats. To enable efficient and accurate documentation, tracking, retrieval, use, and presentation of field and laboratory data, this information will be transcribed or downloaded into a computerized database located at NewFields Madison office.

Electronic and hard copies of analytical reports will be provided by the laboratory. These reports will contain all analytical results and supporting detailed documentation. Laboratory reporting requirements have been specified in the QAPP. Any written documents and forms presented in the laboratory reports will be used for data validation on the analytical results.

3.1.3 Tertiary Data Documentation

Tertiary data documentation will consist of the validated data and is the permanent data record. Data validation will be completed in accordance with the laboratory QA/QC manual in the QAPP. Once validated, all electronic data will be compiled in an electronic MS Access database. This database is one developed by NewFields that serves as a total environmental data management package. It will form the foundation of the site geographical information system (GIS). The database package, called Environmental Data Management System (EDMS), is a comprehensive management tool designed for compilation of historical and ongoing environmental investigations. Computerized data records will be archived to secondary backup computer media (i.e. compact discs) to ensure the integrity of the data in the event of failure of the primary computer storage media.

3.2 ANALYTICAL REPORTING

3.2.1 Electronic Data Deliverables (EDDs)

The laboratories will provide EDDs to URS and NewFields by email. These files will contain only final data (no preliminary data). The Data Manager will make a replicate copy of all EDDs so as to not alter the original file. All changes, revisions, or other edits to the EDD will be made to the replicate copy of the original EDD.

The EDD files will be sent to the following two (2) individuals:

Data Manager – Derek Zoellner dzoellner@newfields.com
QA Officer – Susanne Tomajko susanne_tomajko@urscorp.com

The QA Officer will print a copy of the email and include this document in the final evidence file for the project. The Data Manager will verify that the EDD file was received. Any analytical reports provided by the laboratories that cannot be formatted into an EDD will be manually entered into the electronic database. All manually entered data will receive an independent 100% quality check by the Data Manager. The Data Manager will document this quality check.

As required by the AOC, all data shall be submitted to the USEPA in the EDMAN format as outlined in the Electronic Data Deliverable Specification Manual Version 1.05. Data validation will be completed on laboratory analytical reports before data can be submitted in EDMAN format. EDDs will consist of individual comma-delimited files (csv) that will be final checked with USEPA Region 5 ELFC© field and ELDC© lab data checking software prior to submittal. The EDD files will be submitted to USEPA on electronic storage media (diskette or CD) accompanied by a cover letter. These EDDs will be included with status reports submitted to USEPA on a monthly basis. Only validated data will be submitted.

3.2.2 Hardcopy Analytical Reports

The laboratories will forward hardcopy analytical reports to the Project Manager, who will route copies of applicable information to the Data Manager and/or the QA Officer. The QA Officer is responsible for ensuring that the data packages are correctly entered into the project files. Hardcopy report requirements are listed in Section 7.0 of the QAPP. The Data Manager will perform a comparison of the data in the electronic files to the hard copy reports prior to data loading.

3.3 DATA MANAGEMENT

3.3.1 Sample and Analytical Data Package Tracking

Knowledge of the status of samples and analytical data packages during the RI/FS process is the primary goal of data tracking. The Data Manager is responsible for this tracking. The tracking will managed through a combination of EDDs, chain-of-custodies, written and telephone correspondence and the project MS Access database.

To track samples, the Data Manager will perform the following:

- Note current location of the sample or data package;
- Readily retrieve chain-of-custody information; and
- Note the date the sample was received by the laboratory.

To assist the Data Manager, the QA Officer will perform the following to track samples:

- Record the date the analytical report was received by URS;
- Note the project file where the paper copy is filed;
- Check the completeness of the submitted report;
- Report any discrepancies (between items received and requested) to the Laboratory and to the Project Manager; and
- Resolve discrepancies as needed.

The Data Manager will work closely with the QA Officer to ensure that the information reported in the electronic database correlates to the records on the hardcopy analytical report.

3.3.2 Electronic Data Loading

Prior to loading data into the database, the EDD must be checked for errors and inconsistencies to ensure its accuracy and correctness. Any errors will be corrected prior to loading. The Data Manager will evaluate the accuracy of the following prior to data loading:

- Field sample identification numbers;

- Duplicate project samples and corresponding field sample identification;
- Re-extraction data;
- Spelling of synonymous parameter names; and
- Sample collection date.

The Data Manager will be supported by the QA Officer to assess the accuracy of the information in the incoming EDD file. A summary table regarding the corrections made during pre-loading is to be completed by the Data Manager and retained in the final evidence file. The narrative will contain a log of the results of all the QA/QC tests performed.

After completion of pre-loading activities, the sample results will be loaded into the database. The Data Manager will review the loaded file to ensure that the result of the load was accurate. The database will be queried to check analyte counts, duplicate results and/or samples, missing qualifiers, and relational joins.

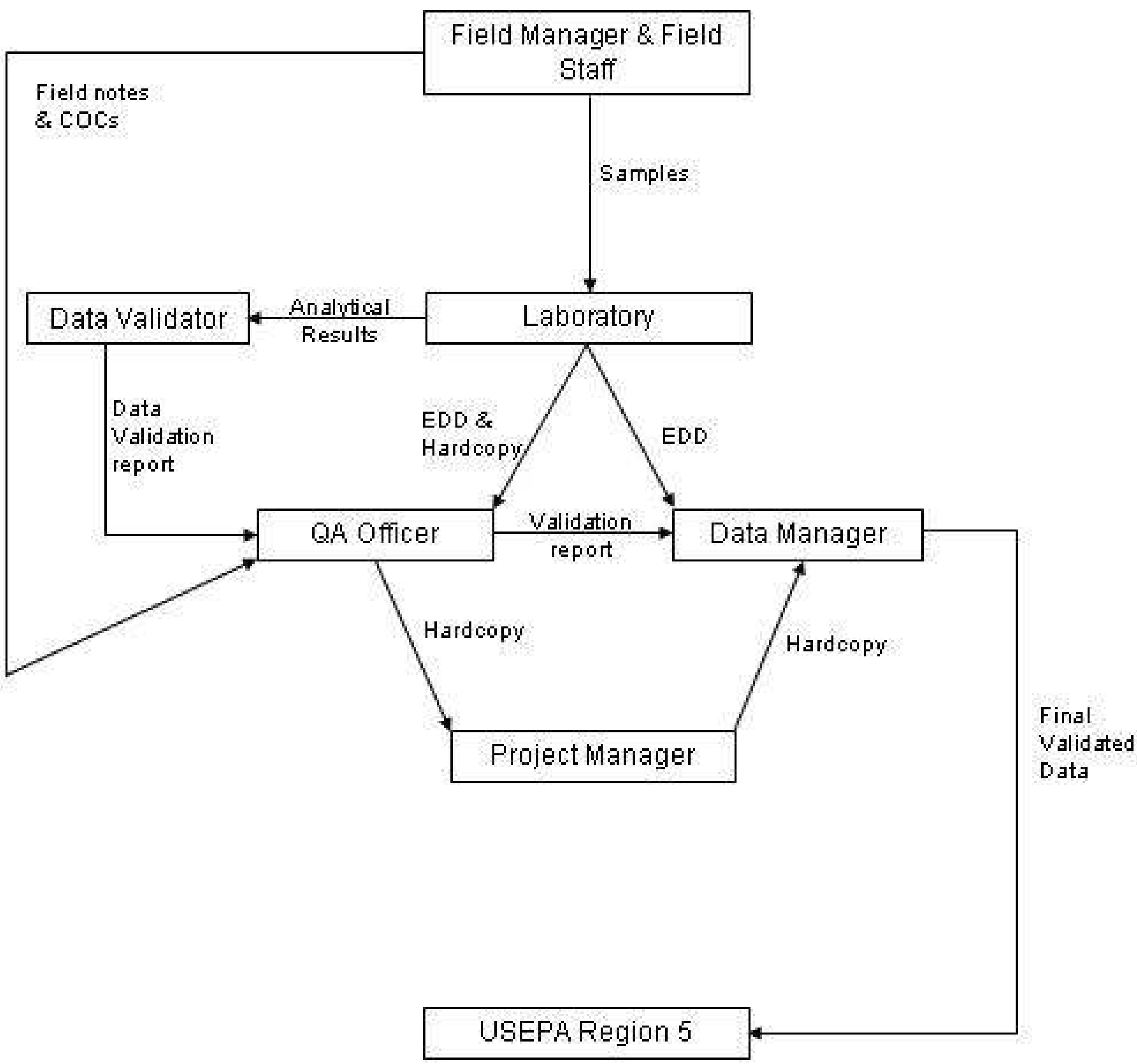
3.3.3 Manual Data Loading

When data are loaded manually, the Data Manager (or designated staff member) will perform an independent 100% check of the information to confirm the accuracy of the prepared database. It is the responsibility of the Data Manager to ensure that the information is entered correctly. Examples of manual data entry include the following: entry of data validation qualifiers, entry of survey information for sample locations, and entry of any field parameters.

3.3.4 Data Validation and Qualifies

Data validation will be completed by the independent data validator on all samples collected during the RI. A Level 4 validation process will be done on a select 10 percent of samples, while Level 3 validation will be done on the remaining 90 percent of samples. Once data validation is complete, the validator will send copies of the final report to the QA Officer and the Data Manager. The report shall contain the field identification, laboratory identification, parameter, result, units of measure, laboratory qualifiers, dilutions, and laboratory reporting limits. The Data Manager shall label the copy with the sampling delivery group (SDG) number, laboratory name, project name, date, and edition (e.g., Version 1). Data validation results will then be entered into the EDD before final submittal to USEPA.

Figure 1
Data Management Flow Chart



APPENDIX B

RESUMES

APPENDIX C

PROPOSED SCHEDULE

APPENDIX D

LIST OF ACRONYMS/ABBREVIATIONS